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ABSTRACT

The importance of language training for young handicapped children is stressed, and the speech and language component of a mainstream program is described. Language is defined as the interrelation of cognitive perceptual organization, non-linguistic experiences, and linguistic experiences. Outlined are the various language programs used in the College Learning Laboratory Mainstream Language Program at the State University College at Buffalo, New York. Outlined are procedures for identification of children for mainstreaming, assessment (with comments on specific tests), on-going assessment, and intervention which includes auditory skill development, verbal expression development, and conceptual and abstract thinking development. (DB)

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MAINSTREAMING FROM PLAN TO PROGRAM:

THE SPEECH AND LANGUAGE COMPONENT OF A MAINSTREAM PROGRAM

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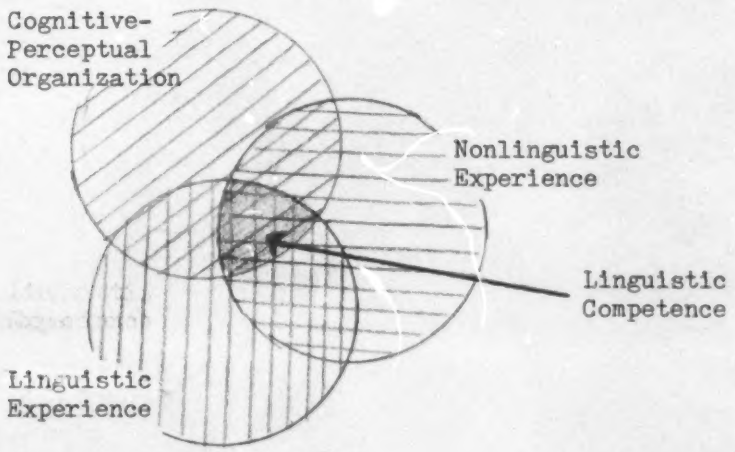
Rationale

In the course of early language development the child builds a repertoire of cognitive and perceptual schemata as a way of organizing and understanding concepts. These are built from a number of non-linquistic experiences obtained from the environment. The child begins to discover devices by which such concepts can be expressed, aided by a number of linguistic experiences obtained in the environment. The process of acquiring language is that of learning how to map or code from one representational system to another; i.e., to represent the pre-linguistic cognitive and perceptual schemata obtained from the environmental experiences through a system of linguistic devices to express some underlying thought. The interrelation of cognitive-perceptual organization, non-linguistic experiences and linguistic experiences yields linguistic competence or language. (See Figure 1)

Figure 1. Interrelation of Components of Language



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The Speech and Language Component of

A Mainstreaming Program

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Abstract

Language is defined as the inter-relation of cognitive-perceptual organization, non-linguistic experiences and linguistic experiences. The relationship between language and reading is outlined and the need for language training to continue into the early school years for all children is stressed. The language program at the College Learning Laboratory is outlined as based on the definition of language. Speech and Language characteristics of mainstreamed children are outlined with summaries of assessments of language skills. The various language programs used in the College Learning Laboratory Mainstream Language Program are outlined.

Language and Reading

In the course of developing language the child develops a variety of modalities through which he receives information about his environment. Most important to the development of speaking and language skills is listening. At birth and even before birth, the child begins to listen to the sounds of his environment. He attaches meaning to these sounds through a series of linguistic experiences which he relates to the sounds. He becomes adapt at determining the system of grammar for these sounds and begins to use them to express ideas in his cognitive perceptual schemata.

When the child begins school he is expected to adapt what he has learned in one madality system--speaking and listening--to another system--reading and writing. He is to code or map what he has mastered in one system to another system.

Although speaking and listening and reading and writing share a mutual grammatic system, the surface structures may differ. We do not write using the same surface grammar as when we are speaking. Think of the many incomplete sentences, dangling participles and split infinitives that we use in everyday speech. The same parallel can be drawn between reading and listening. The inconsistency between speaking and writing, both expressive tasks, and listening and reading both receptive tasks, make the task of learning to read somewhat ominous.

Although inter-related, the communication modalities are not used equally in human communication. In adult communication day approximately eighty percent of communication efforts are in speaking and listening. The remaining fifteen percent is spent in reading and

writing tasks. In young children and indeed in mentally retarded children who do not have facility with reading and writing, virtually all of their communication time is spent in speaking and listening tasks. Since both speaking and listening play such an important role in the development of communication in young children it becomes essential to attend to the development of language skills as an integral part of the academic program. The child must become adept at the speaking and listening code before he is able to relate that to the reading and writing code. Indeed, speaking and listening form the basis for reading and writing. As reading and writing develop. speaking and listening inter-relate and enhance its development. Both systems continuing to develop through adulthood one dependent on the other, each enhancing the other.

Language Development in the School Aged Child

That I have made such a point of the development of language throughout the school years and into adulthood may come as a surprise to some. In recent years there has been an impressive accomplishments in the study of language development of the child between the age of eighteen months and four to five years. It is assumed by some, many, that at th e end of this period the child has mastered the exceedingly complex structure of his native language. While the accumulated observational data of the language development of the young child do leave one with a sense of awe, especially when viewed within the theortical framework of recent linguistic and psycholinguistic theory, the emphasis upon what goes on between the ages of eighteen months and four to five years has led to the relative neglect of language development in school aged children.

It is commonly understood that articulation development in young children is not complete when children enter school. Indeed, although children master many sounds of their native language between the ages of three and four, they show a marked increase in articulation development between the ages of five and seven with the addition of such sounds as /s/, /z/, /tS/, /S/, /ʒ/,/dʒ /, and /θ/. Development continues even to the eighth year with the addition of such sounds as triple blends /skr/ and /skw/.

Much of the study of language development in the pre-school years has centered on syntax or the ord r in which we use words to express ideas. Although it may appear that the young child has mastery of the basic structures of the language there have been a number of studies that have shown that children beyond the kindergarten and first grade fail to exhibit full development of to following:

a.	The auxiliary have	I <u>have</u> been
b.	The participal complement	The jewelry <u>stolen</u> yesterday
c.	Iteration	John, Sue <u>and</u> Mary
d.	Nominalization	Help <u>the</u> <u>poor</u>
e.	Pronominalization	John knew that <u>he</u> would win
f.	Conjunctions	If...so; if...then

Semantic relations expressed by the child have their roots in the cognitive-perceptual strata of the child's expereinces. Because these experiences continue to develop, alter and change throughout life the child's semantic knowledge must also continue in a state of flux through adulthood. Even concepts that children use such as "brother",

"more", "less", ask, "tell" and others that the child uses can be shown to be different in psychological referent from that of the adult. Indeed, such concepts have been shown to pass through various stages of development that are regular across many children.

All of this is to say that in spite of the mass of information about the development of language in pre-school children, there are clear indications that language development is far from c mplete when the child enters school. Regardless of whether we examine phonology, syntax or semantics we find data to indicate that further development is required before adult language competence is reached, if it is ever to be reached at all.

Language in the Mainstream Program at CLL

If language is not developed fully in the normal non-handicapped child when he begins school tasks, then it can not be expected to be fully developed in the handicapped child entering the mainstream program. Children in the mainstream program at the CLL are typically mildly and moderately retarded children. Many of the children are multiply handicapped. All have speech and language delay as a major or contributing factor to their lower intellectual functioning. Recognizing the need for strong support in speaking, listening and language skills for the mainstreamed children, the speech and language services at CLL are an integral part of the mainstream program, especially at the promary level.

Dimensions of the Language Program

I. Identification

Children who have been successfully mainstreamed at the CLL have had the following basic speech and language prerequisites:

A. Be Verbal. The successfully mainstreamed child has had sufficient speech and langua,e skill to be able to communicate both with peers and with adult teachers. The developmental level of the expressive language does not appear to be crucial. We have successfully mainstreamed one child who was able to speak in three to four word telegraphic sentences three-fourths of which was often unintelligible. The desire to communicate, and the willingness toattempt to enter verbal exchanges with both children and adults seems to be the crucial factor.

B. Be attentive to auditory stimuli. Because of the natur e of the regular classroom, much instruction nad other information is given auditorially. The child must be able to attend to auditory stimuli such that he is able to comprehend to the best of his ability what is being spoken. This is not to say that the child must be able to understand what is being said, only that he exhibit sufficient control to attend to the speaker. He must be able to follow directions for classroom routines, and gnerally be cognizant of what is happening around him.

As part of the process for selection for mainstreaming a process of assessment is instituted. This process takes basically two dimensions: Observation and Assessment.

Observation of the child's use of language is made in a variety of settings including in his present classroom, in the

cafeteria, on the playground, and, if possible, at home. This is to determine if the child is able to communicate within the confines of his present classroom and with the people in his immediate environment. Observation is informal and has the purpose of determining whether the child is able to use language to communicate and if he is able to attend to group instruction.

More formal assessment follws for children selected as being possible mainstreaming candidates. A screening test again consisting of informal measures determines whether there is a speech or language proble, that requires further assessment; whether there is need to refer the child to other professionals. Notation is made of speech articulation, voice, fluency and language so that appropriate formal assessment techniques can be used.

II. Assessment

Children identified as requiring additional assessment are given a battery of tests to determine:

1. the developmental level of their language
2. the nature of behavioral differences
3. the specific behavior requiring remediation.

The goal of assessment at this point is to be able to structure an appropriate program to remediate any language or speech deficits that are found and/or to recommend language facilitating environments for th e child.

A battery of tests selected as appropriate for the child is selected from among the following:

Assessment of Children's Language Comprehension (ACLC)

Boehm Test of Basic Concepts

Illinois Test of Psycholiguistic Abilities

Test for Auditory Comprehension of Language

Elicited Language Inventory

Goldman-Fristoe Woodcock Auditory Skills Battery

The most frequently used instrument is the Illinois Test of Psycholinguistic Abilities. This intrument is used because it provides the teacher and the language pathologist with an indication as to which channel is most functional for the child in acquiring language. By and large, the ITPA results show that the mainstream children are lacking in auditory skills. A composite of ITPA test scores from mainstreamed c children at CLL shows at least a 18 month gap between auditory and visual skills. The mean scaled score for the children has been 26 with auditory scaled scores at 22 and visual scores at 29. The children have shown the greatest amount of difficulty with auditory reception, grammatic clo sure, and both sequential memory tasks. Grammatic closure has been the most consistently deficient. The children have little success dealing with irregular forms, with comparative and superlative adjectives, with pronouns, and verb tense.

Performance on the Elicited Language Inventory is markedly better than one would expect from the low grammatic closure tasks. Although the average percentile score is at the 13 th percentile, some errors that the children make in the ITPA are not made on the ELI.

Many of the Mainstreamed childre perform well on instruments such as the Peabody Picture Vocabulary Test. For that reason and because the test yeilds little information that can be used in planning an intervention program, it is not used. The Auditory Comprehension of Language is used rather frequently. along with the Boehm Test of Basic Concepts. These two instruments indicate that the mainstream child most frequently has difficulty with concepts of 1) time, 2) space, and 3) number.

Difficulty with time is observed in difficulty with verb tense. The mainstream children at the primary level are unable to deal with concepts of future tense and past tense auxiliaries. Although ab able to deal with numerals and do rote counting many of the children have difficuoty with number concepts such as more, less, several, some, few, most, more, most. This difficulty is reflected in problems with noun-verb agreements, comparative superlative concepts, irregular plural forms and regular plural forms.

Time and space concept difficulty is showed in proble,ms with before and after, middle, around, over, below, above and between both in concrete situation and in following directions in class and transferring these directions to the two dimensional pen and pensil task.

Children's auditory skills are assessed with the Goldman Fristoe-Woodcock Auditory Skills Battery (1976) The Discrimination tasks, The selective Attention Test and the Memory Tests have been found to be most useful. In general the Auditory Skills Battery confirms what was observed on the ITPA yet in more detail. The children as a group have considerable difficulty with auditory tasks. They are unable to perform in difficult listening situations, both for discrimination tasks and for selective attention tasks. Although all children showed difficulty with additory discrimination their difficulty against the noise background was even more pronounced. Although auditory recognition memory was relatively good, memory for detail was impaired and sequential memory was even more seriously affected.

Assessment of the other wide variety of speech problems present with the mainstream children is conducted by the appropriate tools. Virtually all of the promary mainstream children present a problem in speech and or language. Indeed all except one have multiple speech and language problems including articulation, fluency, rate, voice hoarse, nasality, denasality, and language.

III. On-Going Assessment

Speech and Language Assessment does not stop when the formal tests have been given. Additional testing is ongoing to

1) establish the nature of any behavioral changes which may occur
2) assess the effectiveness of teaching
3) establish baselines for recording progress in teaching.

IV. Intervention

Language and Speech intervention in the mainstream program occurs on three fronts--The Parents, The Classroom Teacher, The Speech Language Pathologist.

When needs are assessed the parents of each mainstreamed child is appraised of his child's speech and language developmental level, the areas that will require remedial help, and specific tasks that the parents can do at home. Parents are invited to view the intervention program and to meet frequently with the Speech Pathologist to obtain additional instructions and suggestions and to report results observed at home. This program is carried out through the summer on an informal way so that part or the progress that is obtained through the school year will not be lost.

The classroom teacher needs to know how best to communicate with the mainstream child and what kind of communication she can expect from the child. Suggestions for creating facilitating language environments are made to the teachers. Teachers have found the suggestions helpful for all children in the classroom, not just the mainstream child.

The models for the language intervention program are three:

1) Auditory Skill Development
2) Verbal Expression Development (which includes articulation)
3) Conceptual and Abstract thinking development.

A. Auditory Skill Development

All primary mainstream children have participated in programs designed to develop auditory skills. This have been indivated

because of the poor performance on the auditory test battery. Programs that have been used successfully with the children are:

Listening for Understanding from Concepts for Communication (DLM)

Sounds and Symbols (AGS)

Sound-Order-Sense (Follett)

The children have particulary enjoyed the Listening for Understanding because the format involves more active listening and participation by the children. Sound Order Sense Program, while beneficial for sequencing of sounds and pattern matching, does not retain the children interest as the Understanding program. Sounds and Symbols has been used with children to increase ability ot discriminate and recognise consonant sounds and to perform blending tasks. It has been especially beneficial with children who have minor articulation problems.

B. Verbal Expression Development

The development of syntax and grammar and attention to the structure of language has been accomplished on a ,very individual basis depending on the child's needs. Techniques used are basically those outlined by Muma (1972) : 1) Correction

2) Expansion
3) Simple Expatiation
4) Complex Expatiation
5) Alternatives

The other techniques that are clinician initiated have been unsuccessful with the children mainstreamed at CLL perhaps because they require greater sophistication than the children possess.

C. Conceptual and Abstract Thinking Development

Many of the mainstream children display the same characteristics that the proschool children in Blank and Soloman (1968) observed in preschool children. The mainstreamed children do not recognize the full power of thier language and have not fully developed ways to use language to code many of thier underlying thoughts. The methods used by Blank and Solomon (1968) have been benficial to this end.

1. Selective Attention	recognizing essential elements
2. Catrgories of Exclusion	Awareness of "not"
3. Imagery of Future Event	predicting outcomes
4. relevant verbalizations	Use Silent language
5. Separation of word-referent	Reflect on meaning before acting
6. Cause and Effect	Determine reasons
7. Categorize	categorize and tell why
8. Use of language	give directions; seek information
9. Sequential thinking	Chains of events extended in space and time.

Using these methods and countless others, with mnay long hours or rather days of planning, with cooperation of both the teachers, the mainstream coordinator and the parents, the children enrolled in the mainstream program at the CLL are developing language skills that serve their needs in the classroom and in the academic program. Most children have made impressive gains in language skills, Several are no longer c considered to be language delayed. Most will need continued support thoughout thier experience in the mainstream program.

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